

1. (Twice Amended) A genetically engineered fluorescent protein comprising a fluorescent protein which incorporates by insertion a protease cleavage site into a single fluorescent protein, cleavage of said fluorescent protein at said cleavage site by a protease causing the alteration of at least one of an emission and an excitation spectra of said fluorescent protein.
2. A fluorescent protein according to claim 1, being a green fluorescent protein.
3. (Amended) A fluorescent protein according to claim 2, said fluorescent protein having said cleavage site inserted between any pair of adjacent  $\beta$ -sheets of a loop structure of said green fluorescent protein.
4. (Twice Amended) A fluorescent protein according to claim 3, wherein said pair of adjacent  $\beta$ -sheets are selected from the group consisting of  $\beta$ -sheet pairs numbers 9 and 10, 5 and 6, and 8 and 9.
5. (Twice Amended) A fluorescent protein according to claim 3, said [modified] fluorescent protein having SEQ. ID NO: 41.
6. (Twice Amended) A fluorescent protein according to claim 1, wherein said single fluorescent protein is selected from the group consisting of a blue fluorescent protein, a cyan fluorescent protein, a yellow fluorescent protein, and a DsRed fluorescent protein.
7. (Amended) A fluorescent protein according to claim 1, said cleavage site having the sequence of SEQ ID NO: 4.
25. A fluorescent protein according to claim 1, said protease being a caspase.
26. (Amended) A fluorescent protein according to claim 25, said caspase being selected from the group consisting of caspase-3, caspase-6, caspase 7, caspase-8 and caspase-9.
28. (Amended) A genetically engineered fluorescent protein comprising:  
a green fluorescent protein having a loop structure, said loop structure having incorporated therein a protease cleaving site, said loop structure positioned between a first  $\beta$  sheet of said fluorescent protein and a second  $\beta$  sheet of said fluorescent protein adjacent to said first  $\beta$  sheet wherein cleavage

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cont.

of said fluorescent protein at said cleavage site alters at least one of an emission spectra and an excitation spectra of said fluorescent protein.

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30. The modified fluorescent protein according to claim 28 wherein said first  $\beta$  sheet and said second  $\beta$  sheet are selected from  $\beta$  sheet pairs consisting of  $\beta$  sheet pair 5 and 6,  $\beta$  sheet pair 8 and 9, and  $\beta$  sheet pair 9 and 10.
  31. The modified fluorescent protein according to claim 28 wherein said modified fluorescent protein has an amino acid sequence according to SEQ. ID NO: 41.
  32. The modified fluorescent protein according to claim 28 wherein said cleavage site defines a sequence according to SEQ. ID NO: 4.
  33. The modified fluorescent protein according to claim 28 wherein said protease is a caspase.
  34. The modified fluorescent protein according to claim 33 wherein said caspase is selected from a group consisting of caspase-3, caspase-8, and caspase-9.
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36. (Amended) A fluorescent protein according to claim 1 wherein said cleavage site has a sequence of SEQ. ID NO: 4.
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